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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/208,105 | 11/25/1998 | KAZUHISA SAKAMOTO | 10233.81USW1 | 7685 |

7590 05/04/2004
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EXAMINER

NADAV, ORI

ART UNIT PAPER NUMBER

2811

DATE MAILED: 05/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 09/208,105 | Applicant(s) SAKAMOTO, KAZUHISA | |
| | Examiner ori nadav | Art Unit 2811 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 November 1998 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, a metal wiring layer located over the entire substrate except at an opening (i.e. one opening) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The sheet of drawing which includes changes to figure 2 and submitted by applicant on 3/16/2004 was not considered, because this sheet of drawing was not scanned and thus does not appear in the file. Applicant is requested to resubmit the changes to figure 2.

The correction to figure 1, which was received on 8/8/2003, is approved by the examiner.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 9-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support for a metal wiring layer located over the entire substrate except at an opening (i.e. one opening), as recited in claim 9.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 10-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claimed limitations of a smaller amount of radiating rays being irradiated, as recited in claim 10, are unclear as to what is the amount of radiating rays since applicant does not recite "a smaller amount" from which quantity.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 9-12, insofar as in compliance with 35 U.S.C. 112, are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto (5,808,352).

Sakamoto teaches in figure 1 and related text a semiconductor device comprising a substrate 10, 11 having a region 11 irradiated with radiating rays, crystal defects 21 within the region irradiated, impurity regions 12, 13 in the substrate, and a light metal wiring layer 18, 19 comprising aluminum located over the substrate except at the openings and being connected to each of the impurity regions, wherein the radiating rays passing to the region irradiated through the opening and generating crystal defects under the opening so that a smaller amount of radiating rays are irradiated to regions in the substrate compared with the region under the opening.

Sakamoto does not teach in figure 1 a metal wiring layer located over the entire substrate except at an opening (i.e. one opening). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a metal wiring layer located over the entire substrate except at an opening, i.e. to form only one opening, in Sakamoto's device in order to use the device in an application which requires crystal defects in only one location in the substrate.

Regarding claim 10, Sakamoto teaches substantially the entire claimed structure, as applied to claim 9 above, except a metal wiring layer having a thickness so as to restrict penetration of rays into the region irradiated. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a metal wiring layer having a thickness so as to restrict penetration of rays into the region irradiated in Sakamoto's device in order to restrict penetration of rays into the region irradiated

Regarding claims 11 and 12, Sakamoto teaches in figures 1 an insulation layer being formed above the region irradiated, the opening being on the insulating layer, and the metal wiring 18, 19 covers part of the insulating layer.

3. Claims 13-14, insofar as in compliance with 35 U.S.C. 112, is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto in view of Takahashi (5,981,981)

Sakamoto teaches substantially the entire claimed structure, as applied to claim 9 above, except using the invention in an IGBT and a MOSFET semiconductor device, wherein the impurity region is a source region. Takahashi teaches in figure 30 an IGBT and a MOSFET semiconductor device, wherein the impurity region is a source region. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Sakamoto's invention in an IGBT and a MOSFET semiconductor

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device, wherein the impurity region is a source region in order to use the invention in an application which requires an IGBT and a MOSFET semiconductor device. The claimed limitation of a radiated region being a positive-negative junction where a parasitic diode is generated is inherent in prior art's device.

Response to Arguments

Applicant's arguments with respect to claims 9-14 have been considered but are moot in view of the new ground(s) of rejection.

Papers related to this application may be submitted to Technology center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 308-7722 and 308-7724. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.

Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to *Examiner Nadav* whose telephone number is **(571) 272-**

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1660. The Examiner is in the Office generally between the hours of 7 AM to 4 PM
(Eastern Standard Time) Monday through Friday.

Any inquiry of a general nature or relating to the status of this application should be
directed to the **Technology Center Receptionists** whose telephone number is **308-
0956**

A handwritten signature in black ink, appearing to read 'Ori Nadav', with a stylized, flowing script.

O.N.
May 3, 2004

ORI NADAV
PATENT EXAMINER
TECHNOLOGY CENTER 2800